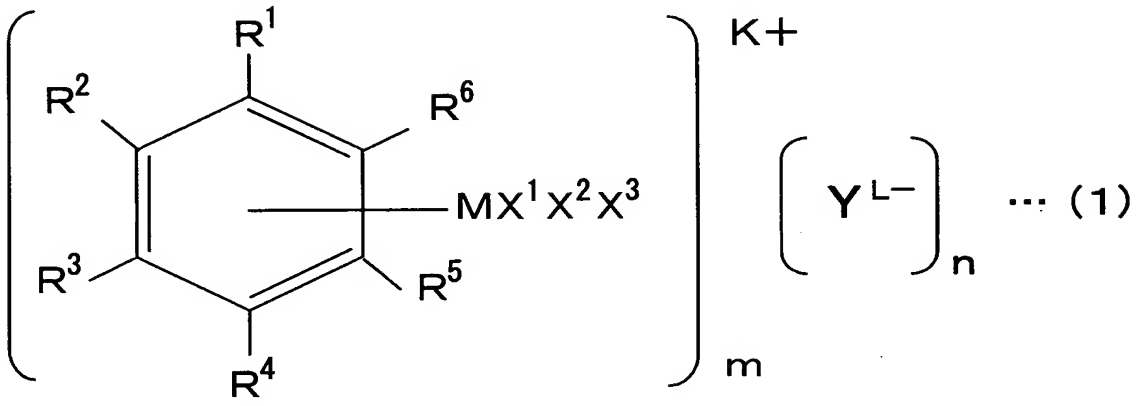
ABSTRACT

Carbon dioxide and water are mixed with an organometallic complex represented by general formula (1) below



where R^1, R^2, R^3, R^4, R^5, and R^6 independently represent a hydrogen atom or a lower alkyl group, M represents an element that can be coordinated to the benzene ring, X^1 and X^2 represent nitrogen-containing ligands, X^3 represents a hydrogen atom, a carboxylic acid residue, or H_2O, X^1 and X^2 may be bonded to each other, Y represents an anion species, K represents a valency of a cation species, L represents a valency of an anion species, K and L independently represent 1 or 2, and K, m, L, and n are related to one another by K x m = L x n. This makes it possible to directly reduce carbon dioxide in water.